Improved point scale simulated climate projections for use in crop modelling

Philip N. Kokic*
Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia,
Philip.Kokic@csiro.au

Crop models allow scientists to quickly investigate management strategies to improve production, for example, by reducing the impact of climate risk on crop yields. Crop modelling under future climate scenarios requires daily time-step, point scale, simulated data for a range of climate variables. Global Climate Models (GCMs) do not produce this information; however, they provide predictors that are useful for statistical modelling. There is the added complexity that the climate data are temporally and spatially dependent. In this presentation I will outline a method based on modelling of quantiles of the data in terms of the GCM predictors, then explain how quantile matching and the block bootstrap is used to simulate the future climates. I will also illustrate how these data can be used to model Cassava yields in the Pacific region.

Key Words: Quantile regression, prediction intervals, interannual climate projections