Pedicting rainfall and drought at least a year in Advance in Zimbabwe using climatic determinants (Darwin and Southern Oscillation Indices)

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Most studies on predicting drought and rainfall in Zimbabwe have focused on correlations analysis between rainfall and climatic detaminants such as the Darwin Index and the Southern Oscillation Index. The aim of this paper is to model the drought/rainfall in Zimbabwe by incorporating the effect of the Indices. The study departs from previous research by attempting to determine a particular month and lag whose Index value influences annual rainfall in Zimbabwe, at a lag of at least one year to the rainfall season (at least a year in advance to the onset of the rain season). Zimbabwe is a strong candidate for the use of the Indices in predictions to reduce the risk in agricultural production associated with rainfall variability. In Zimbabwe, maize is the primary food crop grown by small-holder farmers and is preferred over more drought-resistant crops such as millet and sorghum. Initial results imply that predictions can be done and will provide valuable information for crop management.

Key words: Annual rainfall, Darwin Sea Level Pressure, Southern Oscillation index, Previous year, Predictive regression