Abstract:

The West African nation of Togo has experienced rapidly rising temperatures over the course of the past six decades. Continually rising temperatures have disastrous implications for agriculture, public health, and the general economy of Togo. We have constructed a regression model that captures the annual increase in temperature for all of Togo, based on monthly temperature data from ten different cities in the various geographic regions of Togo over the course of nearly 60 years. Singular Spectrum Analysis (SSA), an extension of the Singular Value Decomposition, is used to identify and thus incorporate seasonal fluctuations into the model, permitting us to isolate the underlying increasing trend in temperature - a trend that suggests well over 2 °C of warming by the year 2100.