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Modelling time trend via spline confidence band

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Abstract Simultaneous confidence band is obtained for the trend function of time series with heteroscedastic α-mixing errors, based on constant and linear spline smoothing. Simulation study confirms that the bands have conservative coverage of the true trend function. Linear band has been constructed for the leaf area index (LAI) data collected in East Africa, which has revealed that the trigonometric curve in the regional atmospheric modelling system (RAMS) is inadequate.

Keywords Berry–Esseen bound · Confidence band · Heteroscedastic error · Mixing · Polynomial spline · Trend