

Automatic autocorrelation and spectral analysis

Broersen, Piet M.T.

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Abstrak

If different people estimate spectra from the same finite number of stationary stochastic observations, their results will generally not be the same. The reason is that several subjective decisions or choices have to be made during the current practice of spectral analysis, which influence the final spectral estimate. This applies also to the analysis of unique historical data about the atmosphere and the climate. That might be one of the reasons that the debate about possible climate changes becomes confused. The contribution of statistical signal processing can be that the same stationary statistical data will give the same spectral estimates for everybody who analyses those data. That unique solution will be acceptable only if it is close to the best attainable accuracy for most types of stationary data. The purpose of this book is to describe an automatic spectral analysis method that fulfills that requirement. It goes without saying that the best spectral description and the best autocorrelation description are strongly related because the Fourier transform connects them.