Posterior SSA

Ilkka Launonen
University of Oulu

Abstract:

Singular spectrum analysis (SSA) is a non-stochastic model-free method for finding structure in a time series. The method is rooted in climatology, meteorology and geophysics and relates to principal component analysis. The SSA decomposes a time series into a number of component series that add up to the original series. Some of the components represent the trend and oscillations of the signal while others are artifacts of noise.

The new Posterior SSA method provides a means to separate the true components from the noise-induced artifacts via posterior simulation and Bayesian inference. It also gives a framework for performing SSA when no direct data but only a sample from a Bayesian model is available.