

## **Response to reports by reviewers on “Identifying secondary series for stepwise common singular spectrum analysis” (H. Viljoen and S.J. Steel)**

We would like to respond as follows to the points raised by the reviewers in their reports on the above paper.

### **Reviewer A:**

We deal separately with each of the three points made by this reviewer.

1. It is true that there is a large literature on attempts to improve forecasting accuracy of a given time series by using information from other series. Cointegration is an important concept in this regard, with the general consensus being that cointegration of two series is a requirement for using one of the series to improve the forecasting accuracy of the other series. The focus in our paper is however very different: we specifically consider a new non-parametric time series analysis technique, viz. common singular spectrum analysis (Common SSA). If Common SSA is used to forecast a time series of interest (the so called primary time series), one or more secondary series is required. The contribution in our paper is a proposal for selecting the secondary series from a set of available candidate series. As far as we know this important problem has not received any attention in the literature.
2. The model that we use for generating data in our simulation study (see Equations 3.1 and 3.2) is a general model which includes the possibility of modelling seasonality and which has also been used by other authors in similar studies (see for example the paper by Golyandina and Stepanov, 2005, referenced in our paper). We agree that the presence of a seasonal component will not always be relevant, but we do feel that the different scenarios obtained as special cases from Equations 3.1 and 3.2 are important and deserve investigation.
3. In his third point the reviewer refers to the large literature on combining forecasts and suggests that this should receive attention in our paper. We do not agree. The problem of combining forecasts arises when several forecasts for a specific value of a time series, obtained from different models for that series, are available and the question is whether these forecasts should be combined and how this should be done. Our context is different since we have different time series and the problem is selecting a best secondary series for forecasting the primary series of interest.

### **Reviewer C:**

All the corrections/modifications suggested by this reviewer have been made in the revised version of the paper, with a single exception. We do not agree with the change proposed by the reviewer in equation 3.3 on page 6. We have added two sentences below equation 3.3 to explain the definition of RMSE that we use.

In closing we would like to thank the reviewers and the editor for their useful comments which contributed to an improved version of our paper.