Interactive comment on “Complex noise suppression and reconstruction of seismic reflection data from fault structures using Space Lagged Singular Spectral Analysis” by R. K. Tiwari et al.

Anonymous Referee #1

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The paper is interesting but needs major revision before publication. Below please find my comments.

1- title: Please use Singular Spectrum Analysis rather than Singular Spectral Analysis. Similarly, in the text, Space Lagged Singular Spectral Analysis should be changed.

2- A shorter version of Abstract is required.

3- Introduction: The SSA literature is a major point in Introduction. It is very poor and old. For MSSA, see for example: 3-1 Hassani, H and Mahmoudvand, R. (2013). MULTIVARIATE SINGULAR SPECTRUM ANALYSIS: A GENERAL VIEW AND NEW VECTOR FORECASTING APPROACH. International Journal of Energy and Statistics. Vol. 01, page 55-83 3-2 Hassani, H., Heravi, S. and Zhigljavsky, A. (2013), Forecasting UK Industrial Production with Multivariate Singular Spectrum Analysis. Journal of Forecasting., 32: 395–408. For 2-D SSA which very important for such analysis, see Zhang, J., Hassani, H., Haibin, Z. and Zhang, X., 2014. Estimating multi-country prosperity index: A two-dimensional singular spectrum analysis approach. Journal of Systems Science and Complexity, 27 (1), 56-74. I have a serious problem with their mathematical formulation. The authors need to revise the paper completely. From the beginning, a proper definition of series Y (x) is needed, what is x and range. Dimension has been typed incorrectly. Eigen triplet→ eigentriple. Equation (3) is the definition of ordinary trajectory matrix and NOT for spatial, it is not easy to understand then. Again, in (4) what is the definition of g_N.


6- Furthermore, I would like to see how the proposed method is sensitive to the noise level. A simulation study would be great help in this regard.