

Interactive comment on “Explaining and forecasting interannual variability in the flow of the Nile River” by M. S. Siam and E. A. B. Eltahir

Anonymous Referee #2

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I have two problems with this manuscript. Firstly, I am not at all sure what, if any, of the findings can be considered to be novel. One of the main findings is that the SOI index is useful in describing the flow in the Nile, but this appears to be well-known from work the authors have already published in Siam et al (2014) – page 4855, line 27-28. As such the correlations derived in his study can hardly be considered surprising, but the existence of these connections is reported as one of the main findings (first bullet point in the conclusion).

Secondly, in Section 3 the connection between flow and SOI & ENSO is established through a simple linear regression (Table 1). I am not entirely sure I understand how the ‘neutral, and ‘non-neutral’ classes are derived, but as far as I can work out the conditional probabilities reported in Section 4 are based on slightly more refined subsets

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of SOI and ENSO and therefore offer no real insight that has not already been reported in section 3, or could not easily have been derived from the regression analysis. In any case, it was already well-known that these correlations existed (see comment above). I like the forecasting index in Eqs. (3) and (4), but this also appears to have been developed in a previous study (Wang and Eltahir, 1999).

Minor comments:

I found the introduction difficult to read. I think the authors should provide a more structured discussion of previous findings and listing of the main drivers. For example, it is difficult to understand if the rainfall over East Africa is important or not (page 4853, line 15-28). In the last paragraph of the introduction there are numerous climatological phenomena introduced, and I would have liked to see a more order discussion, possibly aided by a figure or a table, to enable a better assessment of the novelty and validity of the subsequent analysis.

Page 4856, line 18: This reference to Table 1 comes before any discussion of the analysis and results presented in the Table.

Table 1: When using both ENSO and SOI the R^2 increases, but is this not a normal consequence of using two rather than one explanatory variable? Maybe this is worth a comment?

Page 4856: I think more details of how the ‘neutral’ and ‘non-neutral’ years were classified – perhaps add a figure with a time series of SST and to illustrate the variability?

Page 4859, line 8: there is no Winkler (1972) in the references.

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