

Interactive comment on “Analysis of frequency and duration of the functional periods on the basis of long-term variability of limnetic processes within the Bug River valley” by J. Dawidek and B. Ferencz

Anonymous Referee #1

Received and published: 16 June 2015

The manuscript is focused on a specific area, the Bug River valley, which has been previously studied extensively by the group of the authors. The objective of this work, with respect to other previously published material, is the study of the main factors that influence frequency and duration of potamophases and limnophases. While the analyses are based on a relevant database, I found the approach to be rather standard and presenting no particular degree of innovation. It might be that the overall innovation an increase of scientific understanding stems from the results and their interpretation and is not directly linked to the method of analysis (which, as I stated, is quite well

C6900

established in diverse fields). PCA is typically applied to reduce the number of variables upon which a process depend and for the sake of a clear and well defined system representation. These aspects are not convincingly discussed in the manuscript, even as it can be noted that a linear PCA is a rather standard tool and its application is rather trivial once one defines the quantities of interest. In this case two Principal Components appear to adequately describe the system and the relative contribution of each of the identified state variables to each of these is readily determined in Figure 8. As some of the state variables appear to enter in comparable measure in the second Principal Component, PC2 (I assume the vertical axis in Figure 8 is for PC2), the interpretation of PC2 is not trivial. This is also stated by the authors, thus rendering even weaker their analysis which is also aimed at the identification of the key factors affecting the system behavior they study. All in all, I have to state that the manuscript itself does not provide any compelling reasons about the degree of innovation in the findings and the way these can be employed to broaden our current knowledge base of the type of environments considered. The way and confidence with which the results obtained by the authors could be extended to diverse contexts are not clear, thus rendering the application of limited relevance and the results of dubious interpretation (see also the lack of interpretation of PC2). As the nature of the study is more application-oriented, I suggest the authors to consider a diverse journal through which to expose this particular work. In my view, an application should also include a clear example and demonstration of the way the results can actually be applied to solve a problem of practical relevance.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 13145, 2014.