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Interactive comment on "Development of a statistical tool for the estimation of riverbank erosion probability" *by* E. A. Varouchakis et al.

Anonymous Referee #2

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The manuscript predicts the probable presence or absence of erosion by combining a physically-based bank erosion model and regression analysis. The bank erosion model computes the eroded area at 12 location using bank material properties and fluvial conditions at specific times. The regression model correlated the simulated bank eroded area and two independent variables, channel width and bank slope. The article is well written and has presented a unique approach in identifying vulnerable areas for erosion. However, I would like the authors to address the following issues: 1. Although BSTEM is considered a physically-based model, simulated values are still subjected to a huge amount of uncertainty brought about by several assumptions for instance the material property. I would like the author to show a comparison of the simulated and measured eroded areas. Quantification of the error in the simulated area vs the

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measured will give readers an idea of the uncertainties in the predictions. Stating that BSTEM's results are "reliable" (page 10; lines 5-9) is not sufficient especially if results are used for prediction. "Reliable" has to be expressed in terms of some measure or metrics. 2. One of the most important factors affecting streambank erosion aside from channel geometry are bank materials (soil texture, geotechnical properties, roughness etc.). These should have been included as independent variables in LWLR. I suggest the authors perform additional analysis that at least consider a representative of the bank material as independent variables.

Interactive comment on SOIL Discuss., 2, 647, 2015.