Hydrol. Earth Syst. Sci. Discuss., 4, S280–S281, 2007
www.hydrol-earth-syst-sci-discuss.net/4/S280/2007/

Hydrology and Earth System Sciences Discussions

Interactive comment on "A spatially distributed analysis of erosion susceptibility and sediment yield in a river basin by means of geomorphic parameters and regression relationships" *by* S. Grauso et al.

P. D'Odorico

paolo@virginia.edu

Received and published: 10 May 2007

The authors invited me to contribute to this discussion. I am interested in the research topic and ideas discussed in this paper and I find a strong potential in this type of study on the relationships between erosion susceptibility and geomorphic parameters.

The approach presented in this paper lends itself to a number of interesting "real world" applications. I agree with Referee #3 that the model is empirical. However, I would argue that any other quantitative assessment of soil erosion would be also empirical.

Even process-based methods rely on coefficients that can be estimated only by calibration, and that are therefore empirical.

I would like to stress an important issue emerging from this study, namely, the uncertainty associated with sediment transport/deposition measurements. I believe the authors have been excessively cautious in classifying their data as "soft data". My understanding is that, because these data resulted from direct measurements, they are not "soft". Of course they are affected by uncertainty; all measurements of reservoir siltation - with the exception of a few study sites - are affected by uncertainty. In fact, I do not believe the data used by the authors are much more uncertain than what we usually see in this type of studies.

An element that is missing from this paper is any attempt to evaluate the magnitude of the uncertainty. I think that in this case it should be possible to carry out an uncertainty analysis. Moreover, I think that this analysis needs to be done. The effects of these uncertainties on the paper's conclusions should be also investigated.

Overall, the approach used in this study is interesting and well-validated. Thus, I believe that part of the hydrology community would benefit from reading and learning about it.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 627, 2007.