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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Flood risk analysis of the Limpopo River basin through past evolution reconstruction and geomorphological approach" *by* M. Spaliviero et al.

Anonymous Referee #2

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The paper analyses flood hazards in the Limpopo valley, and attempts to correlate the hazardous places with the regional geomorphological setting which is derived from the geological history of the river. These are excellent objectives but not all of them have been achieved with the same level of success. The first part of the paper is a selective account of the geology of southern Africa, summarised from the available literature. The geology determines the floodprone areas in the region. The paper then describes two large floods of the century and shows that the flood maps can be explained by the other two factors. The discussion on the connections, however, are very brief and often just stated as obvious. Expressions like "scientific references" (p. 1373) or "It is our

opinion..” (p.1376) do not help. The quality of the paper would improve if this weakness of uncertain connection is eliminated.

I would suggest rewriting the paper with a different sequence. I would show the flood maps, as they have been done, and describe their location. This is reality. I would then describe the floodprone areas and demonstrate again with the help of satellite images or maps that they are low-lying and have characteristic appearances. This also is verifiable. The final section would show that the location and nature of floodprone low areas are due to the regional geological history. That of course has to be derived from the literature, but put this way, the linkages are more acceptable. The paper then would also adequately demonstrate the basic concept attempted: it is possible to locate places with flood hazard once the regional geology is known.

A paper restructured thus would make a tighter case for the objectives. The objectives of the paper are substantial and praiseworthy. The paper should be published after suggested textual changes. The title and abstract are fine.

Minor corrections:

The following are several minor textual corrections. 1. Please mention the satellite resolution used.

2. P.1370, line 27. De Wit is not referred to in the end list. Same for OCHA ROSA, 2013 in p. 1381, line 8.

3. P. 1371, line 18. Lankin should be Larkin.

4. P.1373, line 15-17. If you want to make a case with braided rivers, you need to provide more details.

5. P.1377, line 26. Use another term to refer to “sea terraces”.

6. P.1378, line 12. Provide proof that the floods did the erosion.

7. P.1379, line 21. This backwater flow is not surprising but common in big rivers.

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8. P.1380, line 11. What are “river wheels”? Do you mean whirlpools?

9. P. 1380, line26. “F” of “Figure” should be lowercase. Unless you provide the figure number too.

10. P. 1380, line 19-20. This sentence is not clear. Please rewrite. Fig. 1. Do you need the colours? There is no index to explain the difference. Fig 5. It is acceptable but a very complicated diagram. Fig. 17. Identify the satellite and its resolution.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 1367, 2014.