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Discussions

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Interactive comment on "Soil erosion evolution and spatial correlation analysis in a typical karst geomorphology, using RUSLE with GIS" *by* Cheng Zeng et al.

Anonymous Referee #2

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OVERALL COMMENT: 1. This manuscript presents a mere application of RUSLE to interpret the variations of soil erosion in a Karst area. I do think that is a good try to improve the management strategies in the region, however, I cannot recommend its publications due to: i) its scientific interest may be debatable because there is no evidence to prove their findings; it is definitely a very general study; ii) In addition, the formal aspect presents clearly room for improvement , namely objectives, material&method and results were not well-linked. I also recommend the English language revision.

DETAILED COMMENTS: 2. Abstract: -Line 19, where you evaluated the correlation degree? What type of spatial elements? -Line 25 and 62, what is exactly rocky deserti-

fication? - Please, I do think that the bullet points are appropriate in the abstracts. -Line 29, 15-35° are equivalent to 25 -70 % which is a very steep slope range. I do think the explanation is evident. - Lines 36-37, lithology is evidently the geological basis of the erosion...

3. Introduction: - Lines 49-52, please review the text, you don't explain the problem to solve, only mention that is very complex. - Line 54, why plots are not useful, at least, they were useful to provide actual measurements. - Line 72, why fragile? - Lines 86-93, I recommend to be respectful with the publications of other authors and you integrate your work into the knowledge chain. Why deficiencies? Miscarriage of justice? I'm afraid this must be a very bad translation. - Line 101, what type of "actual survey" did you carry out? - Line 105, where you study the ecological effects?

4. Material and Methods -Please, it is essential to link data and methods to achieve your objectives. They were not connected. You have not explained your steps to reach your results and in addition, material and methods were mixed. For instance, lines 226-229 must be included into M&M. -The study region is of 1969 ha, however, you don't discuss the applicability of the equations you used. For instance, as for erosivity, how did you calculate the spatial average rainfall? How many gauges did you consider? Is there a sharp variability? And the erodibiliy? What type of data were used? It is particularly important to interpret your results. - The length of dataseries is not clear, why in Table 1 is there only 3 years. More information about the dataseries should be included to interpret the analyses.

5. Results, discussion and conclusions - I would like to encourage the authors to present another more specific work about the features of the most fragile areas and their spatial complexity. I see you have a very high annual precipitation (1100 mm), a steep topography which both imply a great deal of available energy combined with a high erodibility (soft materials). Therefore, if you don't have vegetation or protection to dissipate so much energy on the soil, risk of soil losses are evidently clear. Of course, if the soil materials were more resistant, the expected soil losses would be lower. On the

other hand, rocks must contribute to protect soil as mulch or because they constitute a tough material in outcrops, however, these aspects were not well-developed. It must not be straightforward at your work scale. - Anyway, the chapters 4.3.3. and 5 are very difficult to follow with the tables and figures presented. Rocky desertification and the history of land uses should have been explained into the introduction.

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