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Comment

Interactive comment on “Identifying areas susceptible to desertification in the Brazilian Northeast” by R. M. da Silva Pinto Vieira et al.

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GENERAL COMMENTS

The work pinpointed the susceptible areas to desertification in the NE Brazil where different climate conditions are present. The body of the article is based in a methodology development approach which cluster and discriminate factors involved in the desertification processes of the area. Based on 11 indicators, authors develop 4 ad-hoc indexes discriminating potential areas prone to desertification. Proposed objectives of the research are reached. Based on the SOLID EARTH journal requirements, this article is potentially interesting for the journal. Anyway, article must be deeply revised and organized properly for the final submission. In that sense, the referee ask for a “Major Revision” previous to be accepted. Article is not easy to read, English must

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to be revised and literal translation from Portuguese language to English must to be avoid (i.e.: table 1: “declivity” must be substitute by “slope angle”, etc. . .). Some paragraph must to be re-written for a better understanding (i.e.: line 9 to 12 in page 3229. . . “Overexploitation of natural resources in extremely vulnerable regions can accelerate land degradation and the desertification process, affect ecosystem functioning and decrease productivity, biodiversity and landscape heterogeneity with a serious threat to the environment, and human welfare”. . . .could be substitute by. . .”Overexploitation of natural resources in extremely vulnerable regions can accelerate land degradation and desertification process, affecting ecosystem functions and decreasing productivity, biodiversity and landscape heterogeneity. . .” References must be cited in text in a logical order (alphabetical or by year). Example: page 3228, line 25. Referee ask authors to re-structure the manuscript; “1. Introduction” and “2.1. Study area” are well-defined but “2.2. Selection of the susceptibility indicator” should be changed to “2.2. Methods” and then, “2.2.1. Selection of the susceptibility indicators”. If the referee understand correctly, section “2.3.1. Quality index”, were developed thought already established indicators? or Indexes were obtained by an own methodology? Can you explain how do you establish the Indexes weight? It is mandatory for the following sections. If Quality indexes are proposed and developed by authors, this sections must to be included in Results.

SPECIFIC COMMENTS

Abstract

Avoid the use of acronyms as HDI, it will be explained in the text. Round decimals (83.35 km² to 83 km²). Introduction Page 3229, paragraph one does not give useful information, must be deleted. Other paragraphs must to be re-written for a better understanding. See paragraph 3 of the General Comments above.

Material and Methods

Page 3232, line 10, I suggest to include “flash floods”. In the section “2.2. Selection

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of the susceptibility indicators”, page 3233, line 2-3, authors must to clarify why you grouped into 3 sets if afterwards you define 4 indexes. Going further, why not 2 groups: biophysical and socio-economical? Page 3233, line 8, substitute “altimetry and slope” by “elevation and slope angle”. Page 3233, line 14 and 18, substitute “reinterpreted” by “re-scaled”. Page 3233, line 17-18, you must to refer which soil classification are using, World Reference Base (FAO), Soil Taxonomy???. Page 3235, line 11, add reference of Atlas of Human Development in Brazil. Page 3236, If Quality indexes are proposed and developed by authors, this sections must to be included in Results.

Results and discussion

Page 3237, line 10. In the equation, the term VQI should be EQI, to be consistent during manuscript. In the section “3.1. Environmental quality index”, authors does not include geology neither geomorphology in discussion, only state the soil types. We know that two soil can be classified with the same name but they can have different soil properties since they are developed from different parent material. Example: Humic cambisol developed over schist and Humic cambisol developed over limestones, same name but different properties. Page 3238, line 18, table 7 must be changed to table 8. Revise tables 3, 4, 5, 6, 7. Page 3238, line 18-19, change “totaled” by “reached”. The section “3.3. Climate Quality Index” must be re-written in a correct English for a better understanding. Page 3240, line 3, add Table 8 in text where we can find data.

Conclusions

First paragraph are not a conclusion. It is state of the art, so I recommend to delete or include in the Introduction. Summarize conclusions.

Table 1, change declivity by slope angle.

Table 2. Authors define Rock outcrops as rock surface or covered by coarse rock fragments. This is not true since in terms of hydrology and erosion, rock fragments over soils works in a different way that a real rock outcrop. Re-define in table.

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Interactive comment on Solid Earth Discuss., 6, 3227, 2014.

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