

Interactive comment on “Vulnerability analysis in Complex Networks under a Flood Risk Reduction point of view” by Leonardo B. L. Santos et al.

Anonymous Referee #3

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The submitted manuscript presents the concept of Geo-graph and use it to model vulnerability for route access. Some comments and questions are presented below.

Comments: * The abstract should include highlighting results beyond mention “Our results can represent an important tool for stakeholders from the transportation sector.”; * Page 1, Line 20: double citation for a same author; * Second and third paragraphs in introduction section may be collapsed. The authors are invited to check similar occurrences on next paragraphs; * Please, check the journal directives about citing/referencing – as written on Page 2/Line 4, “...as presented in (Yin & Xu (2010); Santos et al. (2019))”, the included parenthesis looks inadequate for this kind of citation. The authors should consider this concern for the entire manuscript; * Furthermore, paragraph of single phrase should be avoided (e.g., Page 2, Line 7 and more); * Last

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paragraph of Section 1 looks out of context. The authors may rise such problematic before state the use of Geo-graphs as a tool on flooding situations; * Any previous study or similar research (on the Geo-graph point of view) were cited. If this is a pioneer study, the authors should ensure and then highlight it; * Page 2, Line 25: check decimal/thousands separator on English writing; * Include a figure to express the study area location (South america → Brazil → State) may help the study/manuscript understanding; * Page 3, Line 3: Since Herrmann et al. (2014) has more then one author, the pronoun “He” is inadequate; * Page 3, Line10: Use acronym for institution citation, instead of Universidade Federal de Santa Catarina; * Regarding a path d_{ij} , always is possible to find j from i ? Are defined paths with null cost? If yes, how the efficiency is computed in such cases? Why the efficiency is inversely proportional to d_{ij} ? The proportional symbol was wrongly chosen; * A discussion about the vulnerability on k (the meaning behind the mathematical definition) should be included – what such model means? * Page 3, Line 30: What means a vulnerability of 3%? How such value is interpreted/understood? * How Figure 1 was generated? The author may include a graph representation for “lengths” information used to achieve Figure 1; * Discussions regarding Figure 2 should be improved/enhanced; * How the flood susceptible areas on Figure 2 were obtained? How such areas affect the path’s susceptibilities? Low susceptibilities are found near to flood areas – isn’t expected the inverse behavior? * Figure 2 caption is missing. What means the numbers 1 and 2 on Figure 2? * The last paragraph of Section 3 looks out of context; * The conclusions should be improved/enhanced;

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