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Interactive comment on "Large scale landslide susceptibility assessment using the statistical methods of logistic regression and BSA – study case: the sub-basin of the small Niraj (Transylvania Depression, Romania)" *by* S. Roşca et al.

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Dear reviewer, Thank you for reading our manuscript and reviewing it, fact which helped us to improve it we hope at a better scientific level. We revised our manuscript taking into account yours extremely objective and useful recommandations, and as a result several changes have taken place. So we are sending you the revised manuscript and also this attachment which contains the changes that were made at yours recommen-

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Interactive Discussion

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dations.

We revised the English translation of the text, all the changes being highlighted in red. We thank you for drawing our attention to this problem. We redefined the purpose of the research and its potential users by adding in the text: "By comparing the results of the two spatial analysis models, the study aims at identifying the most suitable method for the area of study, taking into consideration its geomorphologic complexity (steep slopes alternating with levelled terraces, high slope angles in the upper and middle catchment area and low slope angles in the lower catchment area). Taking into consideration the existing low quality maps of the mass movement processes from this area, the results of the most suitable model identified by our study could be very valuable for the local administration in assessing the risk these processes generate in the territory. Furthermore, these results could be used by the insurance companies in the process of risk evaluation, which is still at an incipient stage in Romania". The main purpose is to compare two statistical methods, one which is frequently used in Romania (BSA) with another which has only recently been adopted by the Romanian research community, in order to highlight the predictability degree of their results for the study area. We did not use a qualitative method of comparison as the Romanian legislation requires the use of a qualitative method (H.G.447/2003) in the assessment of vulnerability and risk, which does not provide results with a high degree of validity, therefore we try to identify in its addition a statistical method which could be considered for the territorial conditions of Romania. The "BSA" abbreviation from the title and the text has been replaced with "bivariate statistical analysis". We did not use the "MSA" (multivariate statistical analysis) abbreviation as no such analysis has been performed. The presentation of the study area did not include detailed characteristics, as each specific characteristic represents a landslide preparing or triggering factor (precipitation) which were analysed in the following chapters. However, a general description of the study area was included to locate the area and highlight its morphological complexity, illustrated by the geomorphologic map (Fig. 1). The study area is 87 km2, which is also mentioned in the text. . The source of the databases is presented in table 1 in relation to the reference

list. The following fragment was added to the text, in order to highlight the source of the database for the existing landslides: The database representing the existing landslides was created by mapping in vector format the active landslides, predominantly shallow ones, using ortophotographs and direct field mapping. The titles of tables 3 and 4 were changed to illustrate their content: Table 3: Spatial distribution of susceptibility classes determined by applying the BSA model Table 4: Spatial distribution of susceptibility classes determined by applying the logistic regression

The following fragment was added to the text: The classification of the input factors and their comparison according to their scientific significance were performed using the bibliographical information available for the Transylvanian Depression (Petrea et al., 2014), as well as the present legislation (HG 447/2003), for aspect, slope angle, geology and land use, while expert knowledge was used for the rest of the factors.

With Best Regards, The authors.

Please also note the supplement to this comment:
http://www.nat-hazards-earth-syst-sci-discuss.net/3/C3240/2016/nhessd-3-C3240-2016-supplement.pdf

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 7171, 2015.