

Interactive comment on “Erosion risk assessment and identification of susceptibility lands using the ICONA model and RS and GIS techniques” by Hossein Esmaeili Gholzom et al.

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Subject: nhess-2020-85 – Author Comment Thank you very much for your efforts. We hereby kindly appreciate your careful scrutiny on our submitted manuscript. It was tried to get your satisfaction by improving the manuscript. The following answers are offered to convince the respectful referees. We request you inform us if any further correction will be needed. Modified items are marked in the new revised manuscript.

Best regards Dr. moeini,

SC1 Comments, Received and published: Majid Nozari, 16 Sep 2020

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Overall, the article addresses an interesting theme and uses an innovative and low-cost methodology that has produced satisfactory results in different regions of the world. The methodology is consistent and meets the requirements of the ICONA model. However, the article requires corrections and modifications before it can be published. In this research, very good activities have been done with the data of the study area, information obtained from RSGIS techniques to use the model. This article will be useful if the following comments are taken into consideration and corrected. Specific remarks: 1- It is essential that the entire article be rewritten by a native English speaker. - The article text was revised by an English language expert and Institute.

Abstract 2- In the abstract, the ICONA model method is mentioned. Give the ICONA model steps in two or three sentences. - The ICONA model process was presented in the new revised manuscript, lines 13 – 15.

3- Line 16 "Based on the erosion risk map, results show that the moderate class had the highest percentage of erosion risk (26.26). Reword this sentence. Suggestion: Based on the erosion risk map, the results show that the moderate class had the highest percentage of erosion risk (26.26). The Suggestion sentence was replaced in lines 18 and 19.

Introduction 4- Line 52 "A study by Sedighi (2011) in the Tangier-Red watershed of Shiraz, Iran, using the ICONA model and the use of GIS RS techniques. Reword this sentence Suggestion: A study by Sedighi (2011) in the Tangier-Red watershed in Shiraz, Iran, also used the ICONA model and GIS RS techniques. - The Suggestion sentence was replaced in lines 86 – 87. 5- In the introduction, a better explanation should be given about the purpose of the research and the situation of the study area. - We modified the manuscript and improved its literature. The purpose of this investigating is to use a model that can describe the erosion risk assessment with minimum parameters, minimum time, low cost and high accuracy by use to RS/GIS techniques. This is possible with the ICONA model. Lines 64-65, 92 – 99.

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Data and methods 6- In the study area section, provide information about rainfall and the annual temperature of the study area. - Amount of rainfall and temperature are brought in lines 112 -113.

7- Line 95 correct "It is a model for estimating the degree of erosion risk in watersheds that affect its basis can be estimated at large scales of erosion risk, which is applicable in European countries and many Mediterranean regions and is similar to many of the effective ways to predict erosion using RS and GIS, the model was adopted in the above countries with similar climatic conditions (ICONA 1991)." - This text was replaced in lines 143 - 146.

8- Line 112, 113 Why you put the symbol - The

Results 9- The legend of maps numbers 3c, 4c, 5, 6, 7b should be modified to be very low, low, moderate, high and very high, respectively. - Map legend in maps 3c, 4c, 5, 6 and 7b was modified. Also, the entire manuscript was modified.

10- Table 2, the acronyms (EN, EB, MB, a, b, etc...) below the table 2. - I think it is Table 1, The acronyms (EN, EB, MB, a, b, etc...) are described below the table 1.

11- Delete Table 5 and bring the effective coefficients such as kappa index and Overall accuracy percent in section 2.2 of the data and methods. - Table 5 has deleted and brought the effective parameters in Section 2.2, lines 138 - 141.

12- To evaluate the accuracy of the ICONA model, bring a combination of the erosion risk map with the erosion forms in the study area. - Erosion risk situation, with field observations, remote sensing and models results are brought in Figure 7 (7a, 7b, 7c and 7d).

13- Section 3.3, if the use of the MPSIAC method (base model) is discussed, it is better to compare the results of the ICONA model with the MPSIAC method that you did in the study area, and do not use the term validation with the MPSIAC model and delete this term. - Section 3.3 has been completely revised and improved. In order to explain

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this issue, The necessary corrections to the new revised manuscript are given in lines 101-103 (introduction), 154-160 (data and methods), 296-309 (section 3.3) and figure 7, 358-365 (discussion) and 383-385 (conclusion).

Discussion 14- Discussion should be properly organized according to the results. - The discussion section has been reviewed. This section was modified and properly organized.

References 15- Line 428, correct the year of publication as other references. - This reference is modified, line 507.

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