

Interactive comment on “Socio-economic modifications of the Universal Soil Loss Equation” by A. Erol et al.

A. Erol et al.

aytenerol@sdu.edu.tr

Received and published: 10 August 2015

Interactive comment on “Socio-economic modifications of the Universal Soil Loss Equation” by A. Erol et al. Anonymous Referee #1-Received and published: 22 June 2015

OVERALL COMMENTS This manuscript presents interesting ideas about the application of USLE in areas where the impact of human activities might be important. Although it is not well-developed (please, in Table 8, all the abbreviations have to be explained and a flow diagram is essential to explain the iterations (tekrarlama) and sub-routines programmed), there are some very interesting concepts. I suggest that the authors highlight how this approach can be used in other places where data are available whereas I am not sure about the usefulness of the application in one catchment

C940

only without real measurements. Therefore, my recommendation is Major Revision. The main weaknesses are related with:

1. There are not measurements to evaluate its usefulness. The authors must be aware that the justification to consider appropriate rates of erosion is really poor. Please, the use of “past references” is not nice at all. You have to provide all the details and to mention why the parameters are used or not. I was wondering because the results from GIS are so reliable (e.g. lines 1-5, page 1740). Paraf in the lines 1-5 and page 1740, the sentence was mentioned that all the physical data. This sentence should be the topographic features and land use data of the study area were obtained using GIS and other data from previous studies (instead of past references) to evaluate the contributions of the socio-economic factors to the total annual erosion (A) and find a coefficient in USLE. In this case, “past references” was used as “previous studies” in the full text. In addition, the section of “2.2 Data from GIS and past references” was combined with 2.3. Data obtained for the USLE and created as “2.2 Data from GIS and previous studies”. I used previous studies as follows; In the study, we determined using the required all data to estimate USLE, however, some data (K factor, R factor (Table 2 and 3), C factor, P factor (Tables 4 and 5)) were provided from previous studies (Doğan and Güçer, 1976; Arnoldus, 1977; Balci, 1996; Cebel et al., 2013).

2. On the other hand, in agricultural areas, C varies along the year (please, remember the different subfactors of C). The catchments are mainly forest, however, is the effect of soil moisture important? You must discuss this aspect. I discussed the effect of soil moisture because the WI and WII are mainly covered with forest, as you noted. I discussed soil moisture in the Results and Discussion.

3. Finally, the other important aspect to improve is the readability. The structure can be improved. A flow diagram is needed to clarify the different stages and the comparison of the USLE values in the catchments. The equations must be developed with the abbreviations and the units. The Introduction is very generic and I was wondering what type of innovations have been included in USLE recently. Please review the

C941

structure of Material and Method because it is difficult to follow (2.2 Data from GIS and past references; 2.3 Data obtained for the USLE; 2.4 Data analysis). You compared different parameterizations why?. In 2.4., I think you must explain the approach with the equations. The number of Tables must be reduced (some of them can be joined). Figure 2 was plotted as flow diagram to clarify the different stages in the Table 8. Thus, number of tables were reduced. In addition, the number of the other tables was also reduced as being joined some of them.

DETAILED COMMENTS 4. Introduction – see comment 3. It is too generic. Why did you describe the last innovations of USLE? Introduction was shortened to avoid becoming generic. I was not described the last innovations of USLE because of previous data.

5. Material and Method – Please review this paragraph. You have to be more accurate. You did not measure anything so you have to justify why you used the values of the Tables. “All data for this study, such as topographic features, were obtained from GIS; the effects of the physical and socio-economic factors used to determine the USLE coefficient were obtained from the past references (Doğan and Güçer, 1976; Arnoldus, 1977; Balci, 1996; Cebel et al., 2013).” See overall comment 3, too. The paragraph was reviewed and revised as noted.

6. Results and discussion. Please, review the number, 10m afraid the units of the values are not correct or it does not make sense at all (lines 9-10 , page 1471). I think the page number should be 1741. If it is, they was reviewed.

7. Conclusions (see overall comments). Conclusions section was rewritten considering all the comments.

8. Tables 2 and 3 can be joined (as well as 4-5 and 6-7). The abbreviations have to be explained (particularly in Table 8). Please, remove “past references” and to provide the accurate reference. If you include a flow diagram, you can mention the values of Tables. Tables were joined as you mentioned. Thus, “past references” was removed

C942

and used as “previous studies” for that. Please let me know if is it correct or not?

Interactive comment on Solid Earth Discuss., 7, 1731, 2015.

OVERALL COMMENTS

This manuscript presents interesting ideas about the application of USLE in areas where the impact of human activities might be important. Although it is not well-developed (please, in Table 8, all the abbreviations have to be explained and a flow diagram is essential to explain the iterations (tekziarlam) and subroutines programmed), there are some very interesting concepts. I suggest that the authors highlight how this approach can be used in other places where data are available whereas I am not sure about the usefulness of the application in one catchment only without real measurements. Therefore, my recommendation is Major Revision. The main weaknesses are related with:

1. There are not measurements to evaluate its usefulness. The authors must be aware that the justification to consider appropriate rates of erosion is really poor. Please, the use of "past references" is not nice at all. You have to provide all the details and to mention why the parameters are used or not. I was wondering because the results from GIS are so reliable (e.g. lines 1-5, page 1740).

Paraf in the lines 1-5 and page 1740, the sentence was mentioned that all the physical data. This sentence should be the topographic features and land use data of the study area were obtained using GIS and other data from previous studies (instead of past references) to evaluate the contributions of the socio-economic factors to the total annual erosion (A) and find a coefficient in USLE.

In this case, "past references" was used as "previous studies" in the full text. In addition, the section of "2.2 Data from GIS and past references" was combined with 2.3. Data obtained for the USLE and created as "2.2 Data from GIS and previous studies".

I used previous studies as follows;

In the study, we determined using the required all data to estimate USLE, however, some data (K factor, R factor (Table 2 and 3), C factor, P factor (Tables 4 and 5)) were provided from previous studies (Doğan and Güçer, 1976; Arnoldus, 1977; Balci, 1996; Cebel et al., 2013).

2. On the other hand, in agricultural areas, C varies along the year (please, remember the different subfactors of C). The catchments are mainly forest, however, is the effect of soil moisture important? You must discuss this aspect.

I discussed the effect of soil moisture because the W1 and WII are mainly covered with forest, as you noted. I discussed soil moisture in the Results and Discussion.

3. Finally, the other important aspect to improve is the readability. The structure can be improved. A flow diagram is needed to clarify the different stages and the comparison of the USLE values in the

Fig. 1.