Review of "Geomorphic indices for unveiling fault segmentation and tectono-geomorphic evolution with insights into the impact of inherited topography, Ulsan Fault Zone, Korea"

This is a very interesting paper which is overall well written and clear. Such study coupling geomorphic analyses with neotectonic activities is very enlightening to constrain the geomorphic evolution along a regional major fault belt. In general, the dataset presented is credible and would attract the attention of researchers who work on tectonic and geomorphic evolution of southeastern margin of Korea, as limited data are available from the study area. However, as I will discuss in the following, some middle-minor revisions would be necessary before this manuscript becomes a suitable contribution to the journal.

Major comments:

(1) For geomorphic modelling of cases B1 and B2, the uplift rates of eastern end were set at 18 mm/kyr and 42 mm/kyr, respectively. The uplift rate of 18 mm/kyr for the northern part of the block was calculated based on a relationship between the incision rate and the distance. The authors should give more explanation for its validity, because such an uplift rate is smaller than the CARD value. Similarly, the uplift rate of 42 mm/kyr was obtained based on a relationship between the average CARD and the distance in the southern part.

(2) The UFZ has been divided into five segments based on geomorphology analyses alone. I understand how difficult it will be to obtain some data in an urbanized area. However, it will be more convincing if the authors can provide some other data, for example, the GPS slipping rates, stress accumulation, InSAR deformations…

(3) Base on the modelling results, segment 1 was considered to migrate westward, while segments 2-5 has migrated eastward. However, such a discrepancy was not explained in detail.

Minor comments:

(1) The geomorphic indices should be italic.

(2) For Figures 1a and 1b, I suggest to add the movement properties of the major faults

(strike, normal, or thrust) if possible. Can the active faults and ancient faults be marked by different colors (Red and Black) in Figure 1b? I suggest to add the names beside the major fault, e.g. Ulsan Fault. I also have a question. There are three moderate earthquakes shown in the Figure 1a, but why most of them do not occur along the major fault belts?

(3) I suggest to add the methodology description of the students t-test.

(4) The channel incision rate was calculated based on cosmogenic nuclide. Thus, I suggest to add the outcropping and sampling description. What is the kind of the rock? What is the thickness of the sample?

(5) I suggest to add the Ulsan Fault in Figure 3a.

(6) Channels 5b and 5c should be clearly shown on 5a.

(7) Figure 9 was started to cite in chapter Discussions, behind the Figure 10.

(8) Figure 12c should be clearly shown on Figure 2a.

(9) The chapter Conclusions is too much lengthy. In fact, some of the content are not the conclusions.