**Earth Surface
Dynamics**
Discussions

Interactive comment on "Transitional relation exploration for the typical loess geomorphologic types based on the slope spectrum characteristics" *by* S. Zhao and W. Cheng

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Thanks very much for reviewing our manuscript and giving many meaningful suggestions, and we do our best to respond to these suggestions one by one, which are listed as the following:

ïČŸ 1. Paper contains rather trivial information about distribution of slope inclination in the Loess Plateau in China.

Thanks very much for your meaningful reminding.

We will add this content in the revised version.

C74

ïČŸ 2. Paper does not provide any new information it just computational transformation of one data (CGD and SRTM) into numerical compilation of occupancy of slope of given inclination on terrain classes as indicated by CGD.

Thanks very much for your comment.

CGD data is the newly achieved geomorphologic data in China at 1:1,000,000 scales, which can provide accurate geomorphologic distribution in the Loess Plateau of China; through computing the slope spectrum and analyzing the characteristics of the slope spectrums, the transitional relationships among these geomorphologic types are explored.

ïČŸ 3. Methods are very primitive, just limited to recalculation of data using Excel. Moreover I have doubt if R^2 and regression line is calculated correctly. I cannot imagine any numerical dependency between histogram class and its frequency as authors calculated. Also if regression line is of fourth order (x^4) it can fit any distribution so very high R^2 is not a surprise and means nothing. This is entirely wrong concept.

Thanks very much for your comment.

The data and the computation method are definite, and the results are achieved by using ArcGIS combined with Excel. Moreover, the regression equation and R^2 are computed by using the software based on the histograms.

ïČŸ 4. The structure of the paper is correct but do not contain any valuable information.

Thanks very much for your positive comment.

Based on the CGD data and SRTM DEM data, the transitional relationship among the typical loess geomorphologic types and their sub-types are achieved.

ïČŸ 5. Introduction contain brief literature overview (most of them is irrelevant for the problem).

Thanks very much for your comment.

C75

In the introduction, the importance of the slope spectrum in topographic research is firstly illustrated; then, the research progress of slope spectrum in the Loess plateau is introduced; finally, the aim and background of this research are given. All of these are proved by the literatures in the Introduction Section.

ïČŸ 6. Study area contains information about study area location and data sources.

Thanks very much for your comment.

In fact, it is the "Study area and Data sources" Section.

ïČŸ 7. Part 3 contains brief description of methods. Results contain brief description of tables and charts available in the paper. There are some sentences which I cannot understand: for example what does it means that regression equations are very close to the slope spectrum histograms?

Thanks very much for your comment.

We want to express that the tendency lines are very close to the slope spectrum histograms. We will revise this in the revised version.

ïČŸ 8. (Sec. 4.4) Section 4.5 has no connection with previous ones. It just application of common knowledge about general geomorphometry of tablelands, and does not steams from results.

Thanks very much for your comment.

As the slope spectrums of some sub-types are close, the quantitative analysis to the spectrums is computed, including the tendency lines and the regression equations (Sec. 4.4).

Based on the quantitative analysis to the slope spectrums, the transitional relationship among the loess geomorphologic types and their sub-types is achieved, which is the aim of this research.

ïČŸ 9. It looks like tables 1, 2 and 3 contains the same information like figs: 2, 3 and 4.

Thanks very much for your comment.

Table 1, 2 and 3 are the result data computed from the CGD and SRTM data. In order to make further analysis and comparison, the figures 2, 3 and 4 are acquired from these tables.

ïČŸ 10. What is missing: 1) Images showing investigated forms.

Thanks very much for your comment.

We will add this in the revised manuscript.

ïČŸ 11. 2) Deeper statistical analysis including significance tests between slope distributions in all classes, significance test for conclusions.

Thanks very much for your comment.

We will add this in the revised manuscript.

ïČŸ 12. 3) Basis for results: What fig 6 means and how it steams from the data? Analysis presented by authors does not provide any basis for any conclusions.

Thanks very much for your comment.

Fig.6 shows the transitional relationship among the loess geomorphologic types and their sub-types, which is our research aim.

It is our mistake that the Fig. 5 in Section 4.5 is actually Fig. 6.

ïČŸ 13. 4) What is real novelty of their work except tabular statements? Can they formulate any numerical model of anything?

Thanks very much for your constructive suggestion.

Based on the slope spectrums and quantitative analysis to these spectrums, the transitional relationship among the loess geomorphologic types and their sub-types is built.

As to the numerical model among these types, we will try to construct it.