Solid Earth Discuss., 6, C1131–C1133, 2014
www.solid-earth-discuss.net/6/C1131/2014/

Solid Earth
Discussions
Open Access

Interactive comment on "Characterization and interaction of driving factors in karst rocky desertification: a case study from Changshun, China" *by* E. Q. Xu and H. Q. Zhang

Anonymous Referee #1

Received and published: 11 October 2014

The geographical information system techniques and geographical-detector model can effectively explore the relationship between driving factors and the evolution of karst rocky desertification (KRD) at spatial dimension. The paper found some interesting results based on the quantified indicator (PD value) from the geographical-detector model). It concluded that there was no significant difference between the impacts of natural and anthropogenic factors. As we know, human influence is an important factor on the KRD evolution. However, from the finding in the paper, the impact of human influence cannot be over-emphasized and specific karst environment would have a great impact. Also the enhanced interaction of factors should be taken into consideration in the planning of combating KRD. The findings of MS can help effectively

control and restore areas afflicted by KRD.

Further comments: 1. The PD value is important in the geographical detector model, which is a new and novel tool to investigate the relationship between factors and results. In the paper, it shows that a higher PD indicates that the driving factor has a larger impact on the outcome. As it is a new indicator, the author should explain the meaning of PD by detail. Based on the case study, it should explain how a higher PD indicates a higher explanation of driving factors determining the karst rocky desertification evolution. 2. The paper found that there is no significant difference observed between the impacts of natural and anthropogenic factors. This is an interesting finding and is argued with previous studies, which considered anthropogenic activities as being more significant in KRD than natural factors. To make a more creditable result for readers, the author should give more evidence to support this conclusion with the case study or the relative reference.

Interactive comment on Solid Earth Discuss., 6, 2939, 2014.

Reviewer Comments for manuscript No. se-2014-95

The geographical information system techniques and geographical-detector model can effectively explore the relationship between driving factors and the evolution of karst rocky desertification (KRD) at spatial dimension. The paper found some interesting results based on the quantified indicator (PD value) from the geographical-detector model). It concluded that there was no significant difference between the impacts of natural and anthropogenic factors. As we know, human influence is an important factor on the KRD evolution. However, from the finding in the paper, the impact of human influence cannot be over-emphasized and specific karst environment would have a great impact. Also the enhanced interaction of factors should be taken into consideration in the planning of combating KRD. The findings of MS can help effectively control and restore areas afflicted by KRD.

Further comments:

1. The PD value is important in the geographical detector model, which is a new and novel tool to investigate the relationship between factors and results. In the paper, it shows that a higher PD indicates that the driving factor has a larger impact on the outcome. As it is a new indicator, the author should explain the meaning of PD by detail. Based on the case study, it should explain how a higher PD indicates a higher explanation of driving factors determining the karst rocky desertification evolution.
2. The paper found that there is no significant difference observed between the impacts of natural and anthropogenic factors. This is an interesting finding and is argued with previous studies, which considered anthropogenic activities as being more significant in KRD than natural factors. To make a more creditable result for readers, the author should give more evidence to support this conclusion with the case study or the relative reference.

Fig. 1. Reviewer Comments for manuscript No. se-2014-95