

## ***Interactive comment on “Should oasisification be ignored when examining desertification in Northwest China?” by Dongwei Gui et al.***

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Dear editor and referees, Much appreciate for your valuable advices to our manuscript on behalf all authors. After carefully reading your comment, we revised and even reorganized our manuscript based on referees' advices, and any change can be found in the track change version. We hope you can further give us valuable suggestions. As a scientist focusing on oasis research about 20 years, I know the problem we meet in the oasis research field. we think oasis science need development, and not only for oasis itself but also for better understanding desertification in arid area. This manuscript is opinion or discussion or conception type, we only hope provide our viewpoint to international readers and let more scientist to discuss or criticize it, and finally to make it perfect. Thank you very much! Dr. Dongwei Gui On behalf of all co-authors

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We list our response as follow one by one. RC1: 1. The subject is very interesting, hence it deserves to be proposed in the SE journal. A: Thank you for your encourage. 2. The basic scientific question in the manuscript was: how the relation between oasisification and desertification processes happen (Page 3 Line 13-14). A: Actually, as a short communication, this manuscript mainly want to express why the oasisification shouldn't be ignored in NW China. The relationship between oasisification and desertification is only one part to answer our question and has been clear in the part 2, especially in figure 2. 3. The manuscript draws attention to the process of oasis expansion, which its subject was clearly treated as the major issue for the research (Page 3 line 15). A: Yes, because this topic is ignored more or less in the international research, and even in China. 4. Other objectives were a) to discuss about the importance of oasis-desert relation research and b) to propose topics for future researches. A: Firstly, "to discuss about the importance of oasis-desert relation research" is not our objective. The oasis and oasisification are different concepts, just like desert and desertification. We only discuss the importance of oasisification and its relation with desertification in arid area. Then we propose topics for future researches. In the first version, it is expressed not very clear, and we have reorganized in the revised version. 5. However, in the manuscript there are certain gaps. I listed below some major weakness points which need to be addressed: a) In fact, what are the major mechanisms involved in oasis-desert relation? They should be presented accurately and, also observe the good balance of importance among the mechanisms in their presentation. A: There are many researches to discuss the "mechanisms involved in oasis-desert relation". In this revised version, we have simply introduced the basic situation in page 2, and in the page 14 line 9-22. This manuscript is submitted as short communication type, we want pay more attention to present the importance of oasisification research on oasis sustainable development and on desertification research, then we hope to arouse more researchers' attention on oasisification rather than just desertification in arid area. As to the " mechanisms involved in oasis-desert relation " research can be found in many literatures. 6. The

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manuscript did not establish a strong connection between the mechanisms of the oasisification-desertification processes. I think that this can be the major lack in the manuscript. b) In the subsection 2.1. (Description of the desertification process) the readers expect information about the vegetation, water and soil qualities found in oasis and deserts. Concerning the aspects of the desertification process, is the information clear to readers? A: In the revised version, the section 2 was used to explain: a) the desertification process occurred in semi-arid and dry semi-humid regions (figure 3a); b) desertification and oasisification process in arid and hyper-arid regions (figure 3b). Actually, the figure 3 is the essence and the most important content in this manuscript. The figure 3 is a conception flow chart, it help us to understand the logical process of oasisification and desertification happen in arid area. As to " readers expect information about the vegetation, water and soil qualities found in oasis and deserts ", we think it is not the topic in the manuscript and theses detail information can be found in many researches. We more hope answer the title question from a macro style. 7. c) For the readers, it does not clear the anthropogenic pressure contribution in the oasisification or desertification process (subsection 2.2 and conclusions). A: In the revised version, we use one section to introduce "the anthropogenic pressure contribution in the oasisification or desertification process " , it is in page 5 line 9-22, and page 6, page 7 line 1-10. 8. d) The figures are not clear and they have low information quality provided in the text. The descriptions of the figures in the manuscript should be improved to provide a better understanding of the context by readers (mainly figures 2 and 3). A: In the revised version, we have modified the figure 3 (it is figure 2 in the revised version) to clear show the process of transforming desert into oasis. However, the original figure 2 ( it is figure 3 in the revised version) is conception map, we didn't change. Since we set the paper is comment or opinion type, we just provide more simple and logic map rather than specific data map. 9. e) The subsection 4.2 (Choice of oasis size. . .) was presented in a detailed way while the 4.1 subsection did not. In fact, the human activity role in oasisification process was underachieved (4.1 subsection). A: This subsection (it is subsection 3.2 in the revised version) is simple introduced how

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to research oasisification in the future. Actually, the style of this section is just like other parts, which actually is also a simple style, it is only a concept model. However, as one modes with equations, we need show reader how this model is derived. 10. f) On the line 5, page 10, the phrase is too general to explain the process accurately. A: The phrase is "Regardless of whether an oasis is initially expanding or shrinking under the change of water resources, it will eventually reach a dynamic balance with the surrounding desert". We have changed as "the oasis scale will eventually reach a dynamic balance with the surrounding desert under the water resource limit". g) Are you sure that the subtitle 2.2 should repeat the title 2? A: We have reorganized this section. In the revised version, We have change subsection title of 2.1 and 2.2 as " The process of oasisification and desertification in arid areas ", " Oasisification research is supplement of desertification research in arid area ", respectively. 11. h) Why the manuscript was proposed as a Short communication instead of a review article?. A: Since we want express our opinion that the oasisification shouldn't be ignored, we think Short communication is enough. After all it is not case study. RC2: 1. the abstract need major revision. the objectives are too broad. the author need to focus on one of the points as stated in the manuscript rather than focus on-all-three aspect. build up the idea of the equation and focus to one specific point. a review paper is better suited to summarize if the author choose to focus on 3 aspect at once. A: In the revised version, we have provided a major revision for abstract. It is correct that the objectives are two broad in the original version. In the revised version, we have narrow our paper purpose, in the page 4 line 23 to page 5 line 8, we mentioned "The aim of this research is to elucidate the importance of oasisification and its research through 1) examining oasisification characteristics in recent decades in Northwest China, and 2) clarifying the logical relationship between oasisification and desertification in arid regions. Then, based on the current state of the oasis research progress, we propose important topics for future oasisification research. Finally, we hope to arouse more researchers' attention on oasisification rather than just on desertification in arid area." Since the purpose of this manuscript is to answer why the oasisification shouldn't be

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ignored in NW China. In order to answer this question clearly, we need elucidate the oasisification characteristics in recent decades in Northwest China. We need to understand the logical relation between oasisification and desertification in arid area in theory. However, it is not enough to just emphasize the importance of oasisification research. We need to propose its research direction for reader to discuss. We think these contents are together to answer our question, and it is not completed if ignore anyone aspect. 2. in the model equation, many variables put in place are highly open for discussion, thus not conclusive. A: Yes, we set this paper as viewpoint/discussion paper, and just want express our understanding in oasisification, and we prepare each section as more macro perspective rather than micro perspective or case study. In the model equation, actually it is a conception model. We established the model and provide parameters to readers, it is also discussed as a macro perspective. If we use a case study to use the model, the paper will become one another type, we will do that in the future. 3. introduction is acceptable, with minor revision. A: Yes, we have revised and any change can be found in the new verison. 4. results and discussion are too vague. difficult to understand the focus of the oasisification study as suggested by the author. A: We have tried our best to revised, and change can be found in the track-changes version. 5. figures are not supportive of the discussion/idea of improvement for oasisification research. A: There are three figures in this manuscript. In the revised version, figure 1 shown readers the oases distribution in NW China, it is one basic figure. Figure 2 (it is figure 3 in the original version) is just shown readers how the oasisification process happen in NW China, this figure is not clear, we have revised. Figure 3 (it is figure 2 in the original version) is a conception map, help us to understand the logical process of oasisification and desertification happen in arid area . We think the figure 3 is the essence and the most important content in this manuscript, if we provide a detail flow chart, it is difficult to reflect these logical relation between oasisification and desertification in arid area. 6. the flow chart is still at initial stage of development, thus need further clarification on the flow. A: Just we mentioned on above. As one viewpoint paper, we hope express the relation between oasisification and

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desertification happen with a logic way. 7. the conclusion too long and not focused. A: In the revised version, the "Conclusion" section has been changed as "Discussion and conclusion" . And, we have revised this section and try to focused.

Please also note the supplement to this comment:

<https://www.solid-earth-discuss.net/se-2017-59/se-2017-59-AC1-supplement.pdf>

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Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2017-59>, 2017.

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