

Interactive comment on “Analysis of land cover change and its driving forces in a desert oasis landscape of southern Xinjiang, China” by T. Amuti and G. Luo

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Thank you for the evaluation and helpful comments on our manuscript. The manuscript has been greatly improved according the comments. Hope the revised version of the manuscript could make positive results. Our responses to the comments are listed below, with the updated manuscript as a supplement for referral.

We have restructured the manuscript, especially revised the introduction, method, and the discussion sections. We also rewrote the conclusion based on our own results. The second objective was merged into the first main objective, and the two main objectives were linked in the discussion section. We have fully referred the example the reviewer

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provided and reorganized the topics and contents of all sections in the manuscript.

Section 4. Discussion & section 5, "Driving forces" in the original manuscript: Good suggestion. We have moved "Driving forces: implications for arid oasis landscape planning and management" into the results as one of the objectives of the paper. We have improved the discussion section based on the analysis of the results in our study.

We added a brief definition of desert-oasis ecotone in the introduction section (Page 2, line 26-28 and Page 3, line 1). We also added more information about the driving forces in this section (e.g. page 3, lines: 10-13, Page 4, lines 2-5 and 13-14)). We provided some information about GIS overlay in the method of change detection. In the explanation about the study area, we included the size of the catchment (1 273 710 ha).

The Landsat images and selection of ground control points: We separately specified the spatial resolutions of the three Landsat images in the dataset section. The spatial resolution of the image acquired in 2000 is 30m*30m. To make the classified land cover images comparable, the Landsat images were re-sampled to a pixel size of 30m×30m using the nearest neighbor method. The control points were selected in order to correct the distortions on the images, and map them to their true positions in ground coordinates measured from a map (image to map registration) or to geo-referenced image coordinates (image to image registration). The selected GCPs are mostly collected on the already geo-referenced topographic map or image, and these points are distributed at road intersections, bends in rivers features and the like to easily locate the same points. (Please see the revised paper: page 6, line 1, page 7, lines 3-5)

We revised the Table 1 (page 27), in which the definitions of all initial land cover types merged into the oasis were explained better in detail. In supervised classification, unlike unsupervised classification, the spectrally distinguished land cover classes are interpreted by visual selection of training samples according to each representative class's spectral feature without specific numeric thresholds. We also reordered the

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Tables when they were cited (e.g. table 5 after table 3 and 4).

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/6/C1057/2014/sed-6-C1057-2014-supplement.pdf>

Interactive comment on Solid Earth Discuss., 6, 1907, 2014.

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