

Interactive comment on “Downstream ecosystem responses to middle reach regulation of river discharge in the Heihe River Basin, China” by Y. Zhao et al.

Anonymous Referee #1

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The paper used Landsat images to identify the spatial extent and fractional coverage of the oasis ecosystem and then used a linear model to analyze their relationship with hydrological and climatic variables in the Heihe River in China. Since the downstream oasis system is a typical ecosystem in the arid northwest China, the study would improve understanding the evolution of these oasis ecosystem and the effects of river regulations.

I'm not familiar with the Landsat images processing, but I think it should also be like some kind of model. I want to know if some calibration is done for the vegetation coverage using filed observations or measurements. How about the uncertainty of the calculation results?

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The authors found that none of hydrological variables has significant influence on vegetation distribution, but regional temperature has significant negative effects. Does this mean that the regional evapotranspiration has great effect? Why you did not analysis the ET variations?

Some specific comments: Line 1 on Page 4: Where is the West Juyan Lake and East Juyan Lake, should be marked in Figure 1. Line 1 on Page 8: “(-0.33 to 0)”, is it correct? Line 13 on Page 13: As no groundwater depth and groundwater flow information was presented, the authors should provide more solid evidence that groundwater depth is disturbed only in <300 m area away from the rivers. How you determined the number of 300 m? If the river water discharge to groundwater, groundwater depth would increase away from the river. Figures 4 and 5: The text size of the legend is too small.

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