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Interactive comment on "Effects of water discharge and sediment load on evolution of modern Yellow River Delta, China, over the period from 1976 to 2009" *by* J. B. Yu et al.

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General comments

The Yellow River delta is a newborn delta in warm temperate zone of China. It is the most complete, extensive and young wetland ecosystems in China while it is also one of zones with high biodiversity in the world. In recent decades, runoff and sediment load discharged into sea decreased greatly due to climate warming, soil and water conservation engineering in the milled reaches and uncontrolled water use for city and irrigation and this has constrained the evolution process of Yellow River delta. Most prior researches are qualitative and this is adverse to estimate the effects of climate

change and human activities on evolution of the delta. In this paper, authors analyzed the runoff, sediment load into sea and variations of shoreline of Yellow River delta and estimated the effects of runoff and sediment load decrease on evolution of Yellow River delta. This article is novel and the topic of the present study is pretty timely and worth publishing. It is instructive for estimating effects of climate change and human activities on estuarine wetlands.

R: Thanks a lot.

Special comments

Advice: This paper will more significant if authors could distinguish and determine weights of climate change and human activities on runoff and sediment load reduce respectively.

R: Thanks for the suggestion. Wang et al. (2007) declared that the decrease in precipitation is responsible for 30% of the decrease in sediment load at estuary of the Yellow River Delta, while the remaining 70% is ascribed to human activities in the river basin. Based on our obtained data, we estimate that the decrease in climate change (precipitation) is responsible for 15%-16% of the decrease in runoff and sediment load at estuary of the Yellow River Delta from 1986-2009, the remaining 84%-85% is for human activities in the river basin. The average precipitation of 1976-1985 is 444.36 mm and the value decreases 17.13 mm in 1976-2008, corresponding to runoff of 29.68 $\times$ 108 m3 and sediment load of 0.83 $\times$108 t reduction. Comparing to 1976-1985, the actual average runoff and sediment load reduction in 1986-2009 is 197.22 $\times$ 108 m3 and 5.30 $\times$108 t, respectively. Therefore, the weights of climate change on runoff and sediment load reduction is 15%-16%. We have added the discussion in "Results and Discussion" part in revised version.

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