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Analysis on Yellow River Delta evolution with fluxe variations of run-off and sediment

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ABSTRACT

Thank to the abundant runoff and sediment flux from the Yellow River, the Yellow River Delta (in short is YRD) is one of the quickest continent-building areas worldwide. The YRD land area growth rate was controlled mainly by the amount of provided runoff and sediment. In this paper, the runoff and sediment load of Lijin hydro gauge station, located at the entrance of the YRD, are selected as the representatives; and the relationship between the supplements of the water / sediment and the land area is analyzed by correlation methods; besides, the variation trends of the incoming runoff and sediment load are illustrated based on the Mann–Kendal statistics test. The result indicate that, in the period of record, the annual land area is perfect linear correlation with the accumulated annual runoff, as well with the accumulated annual sediment load; both of the annual runoff and annual sediment load fluxes from Lijin station are in significant decrease trends. At last, considering the crisis of the YRD faced, rational allocation of the water and sediment resources are put forward.