

We thank the editor for your comments and suggestions to our manuscript.

E. Morin (Editor):

The reviewers of the manuscript have positively accounted for its importance and relevance. The methodologies are also adequate. However, they provide a few major comments that must be addressed to make the manuscript appropriate for publication. They comment on the problematic aspects of the division of flow into three regimes, and the lack of consideration of the processes that caused them. The spatial analysis is also missing and could provide some important insights. Additional clarifications are needed on several issues as listed in the reviewer reports.

Response: Thanks for the comments and suggestions.

The three periods were divided according to the frequency of the drying-up phenomenon in the lower reaches of the Yellow River mainstream. We are particularly interested in the recent period when the frequency of the drying-up phenomenon went down to zero. The reviewer suggested that this study would better identify changes in observed streamflow as shifts in regulatory processes. We agree and it was exactly what we did. In the recent period, regulator processes (reservoir regulation) have been adjusted to maintain ecological flow in the river thus no drying-up phenomenon was found.

We do not focus on the impacts of human activities (such as regulator processes and land use change) which had already reported by many previous studies (Yang et al., 2008; Hu et al., 2008; Cui et al., 2009). In this study, we focus on climatic effects on recent runoff change which have been less studied.

We will perform the elasticity technique at the sub-basin scale using the simulated natural runoff following the reviewer's suggestion. The spatial pattern of the contributions from different climatic variables to the changes in runoff will be presented in the revision.

We have revised the manuscript and made necessary clarifications following the reviewers' comments.