

Interactive comment on “Effects of climate change and human activities on runoff in the Nenjiang River Basin, Northeast China” by L. Q. Dong et al.

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[Comment] Authors argue that reduction in the total basin runoff is mostly contributed by the climate change. Just wondering what features (increase in greenhouse gases, influence of anthropogenic aerosols on clouds, aerosol direct and indirect effects, etc.) of climate change affected the runoff. Understanding such details will help to understand reduction of runoffs from other places.

[Response] Thank you for your interesting question. In our study we focused on the trend analysis of two weather parameters, temperature and precipitation, to discern climate change over a period of nearly six decades. We found there were a significant increase of temperature and a significant decrease of precipitation in the Nenjiang

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River Basin. The decline in runoff could be attributed mainly to the climate change, while increasing water use in agriculture has been another important factor. To answer your question whether other atmospheric components, such as greenhouse gases, aerosols, or clouds have played a role in the runoff decline, a separate study with continuous records on the atmospheric parameters is necessary. To our knowledge such long-term data over the large river basin do not exist.

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