

## ***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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We thank the commenter for taking the time to review our manuscript and for providing thoughtful comments. We would like to respond to the comments as follows:

[Comment] I am not convinced that the authors of this paper looked at climate change effects as the approaches used do not warrant that. From the definition of climate change which is a long-term change over 10 or more years, I have not seen this in this study.

[Response] We used 55 years of meteorological data (1956-2010) in our study. The decadal trends from the assessment of the long-term records speak for themselves.

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The method used in our study is popular and has been used in many studies.

[Comment] Apart from this, with climate change I would like to see scenarios of future projections.

[Response] As we have clearly stated in Abstract and Introduction, the primary goal of our study was to analyze a long-term set of historical records and to evaluate the impacts of climate change and human activities on the runoff in the past. Future projection of climate change is beyond the scope of our study.

[Comment] The results of this study are mainly climate variability and therefore the title of this paper should read; "Effects of climate variability and human activities on Runoff in the Nenjiang River Basin, Northeast China".

[Response] While we welcome a philosophical discussion on different points of view on "Change" and "variability," we stick to the conventional criteria for the word choosing. In this paper, we use "climate change" to refer to a statistically significant variation, persisting for an extended period, as we believe the string "climate variability" is more suitable to denoting deviations of climatic statistics over a given period of time from the long-term statistics relating to the corresponding study period.

[Comment] There are so many grammatical errors in this paper. The authors refer to themselves as 'we' in the paper. For example page 11528, line 3, it states; Secondly, we applied..... This sentence should be rewritten as Secondly, the non-parametric .....and the ....double cumulative curve (DCC) were used to detect the change..... There are so many similar mistakes like these in the paper.

[Response] The use of "we" is not only correct in the case of this manuscript, but has become popular in scientific writing even by a single author. We welcome critics on the English language usage in our manuscript; however, we suggest the commenter be more specific on page/line numbers of grammatical errors so that we will review and eventually correct them.

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[Comment] Specific comments:

[Comment] 1. On 3: Results and discussion; Line 7-9; Annual surface runoff from the entire basin averaged 138mm/yr fluctuating from 53mm/yr to 245mm/yr (Fig2). The precipitation had a significant change from 1956-2010, ..... Fig 2 shows that there was a significant change in temperature which shows an increasing trend and not precipitation.

[Response] Our analysis shows that, except for the lack of a clear trend of potential evapotranspiration, air temperature, precipitation and runoff all showed a significant change from 1956 to 2010. The magnitude of temperature change is substantially greater than precipitation.

[Comment] The results of this study reveal that climate variability and not climate change is the main reason for runoff decline in 1975-1989.

[Response] See our response above to the comment on title change.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/9/C5577/2012/hessd-9-C5577-2012-supplement.pdf>

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