

Interactive comment on “Responses of snowmelt runoff to climatic change in an inland river basin, Northwestern China, over the past 50a” by J. Wang et al.

Anonymous Referee #1

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I find only the location of the watershed to be of interest. It is important that researchers are studying the affect of climate change on hydrology in NW China. But, the manuscript itself does not add any new or original information. Many others have published papers on this same topic. Statements about climate change ongoing in this area are not backed up by any test of statistical significance, only plots are provided which are not conclusive in any way. The use of the Snowmelt Runoff Model has been done before. I do not think the authors have actually developed a proper climate scenario. As an example of this, they use a precipitation change of 2X which means that the precipitation is increased by 100%. Climate change studies around the world have indicated that precipitation would increase or decrease by 5-20% at the most. I expect

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that their temperature changes are somewhat inflated also. Although SRM can be used for such changes, runoff response can be no better than the input given to the model. They mention that they use some sort of climate model, but no specifics are given.

Here are some additional comments:

The authors state that the algorithms of MODIS snow products need to be improved in their region. I suggest that the authors themselves must do this and not wait for others to do this for them. The raw MODIS data are available and they could develop a technique that could be used more effectively in their region.

The manuscript has many spelling, grammar, and omission errors throughout the text. I will list only a few: 1. Figure numbers jump from 3 to 12, later in the text Figures 4 to 11 are discussed. 2. Incorrect spellings are used throughout the text. MODIS is sometimes MODSI, acronyms are sometimes not defined like CIVCO, and typos are frequent. 3. I would suggest that things like upstream of Heihe River Basin might be the headwaters of the Heihe River Basin. The word durative does not make sense and it might be duration but I am not sure. 4. Spelling and grammar must be improved in order for the paper to be readable.

Finally, the topic is suitable for the journal, but the manuscript in its current state is not ready for publication.

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