**Climate
of the Past
Discussions**

Interactive comment on "A nonlinear method for detecting climate mutation: a case study for summer climate change in China" *by* S. Q. Wan et al.

Anonymous Referee #1

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This paper proposes a method that can detect the change of climate dynamics, named index-Q based on phase-space reconstruction of time series. With the proposed method, this paper makes a case study of summer climate change of China in the past decades. The results show that dynamical changes of summer precipitation and temperature are spatially coherent, and the authors state this change is associated with wave trains triggered by Tibetan Plateau. This is interesting since there are rare reports about dynamical change of climate in the current literature, and this paper may provide an economic statistical technique touching climate dynamics. But this manuscript still needs big improvement, as commented below.

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Interactive Discussion

Discussion Paper

#1 Judging from the title and the introduction, the authors aims at proposing a nonlinear method to detect dynamical climate change; and then demonstrate this technique with a case study. While the manuscript is not structured in a proper way. For example, the optimizing algorithm should be first and detailed addressed in Sect 2; and then describe the datasets when coming to the case study. This problem also occurs elsewhere in this manuscript. The authors have to make the purpose of this manuscript very clear, whether to propose a method or to make a normal study of summer climate change in China, so that the materials can be put where they belong. In this sense, this manuscript needs reorganizing carefully.

#2 The proposed technique, index-Q, has not been published internationally, therefore needs to be well justified to convince the international community, especially those that are unfamiliar with phase-space reconstruction. It needs more theoretical explanations, and/or further experimental demonstrations in this manuscript.

#3 I am completely lost in the third paragraph in Page 1052, which addresses Fig. 3. What is the meaning to have it here? And furthermore, I do NOT believe we can know whether or not the dynamics have changed from a graph of time series. Where are the Shanghai station and Wutaishan station located? Yangtze River valley is too large, so is North China. The coordinates must be given. And please tell the reason why you select these two stations rather than other stations.

4 The authors links the dynamical changes of summer climate in China with Tibetan Plateau; but this link is something like a GUESS in this manuscript. No any evidence is given for it. Figure 4, published in 1981 representing the great cycle theory, can not imply that Tibetan Plateau can also trigger such a wave train, therefore contributes little to this work. I would like to see a figure showing the wave train triggered by Tibetan Plateau rather than that. This link is not convincing; original telec-onnetion analysis is needed to reach this conclusion.

5 Language problems. The writing needs someone with good command of English

to revise. It is not fluent enough to publish. There are also many grammar mistakes. Technical problems can not be commented at this stage.

Interactive comment on Clim. Past Discuss., 4, 1047, 2008.