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Nonlinear Processes in Geophysics
Discussions
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Interactive comment on "A novel method for analyzing the process of abrupt climate change" *by* P. C. Yan et al.

Anonymous Referee #1

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The paper applies a new method to detect abrupt changes in an observable. It is based on the famous logistic equation studied by Robert May in the mid-70s. The method is straight forward and the authors have done a good job in presenting it. They apply it first to an ideal model, thereby demonstrating the principle, and then they apply it to a time series representing the PDO. They conclude that the abrupt changes found in the PDO relate to global warming. I have the following comments:

1) In figure 5b why state 4 does not have the same frequency as state 2? I would have expected (due to the symmetry of the ideal model) to be the same.

2) That the PDO is involved in global temperature variability has been demonstrated in other previous studies (for example, Tsonis et al: A new dynamical mechanism for major climate shifts, Geophys. Res. Lett., 34, L13705, 2007).

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3) I would like the authors to discuss if their method can be used to predict the next abrupt change. It's one thing to detect past abrupt changes and another to predict the next one. Can future values of parameters μ and ν be predicted from a series of past values?

Interactive comment on Nonlin. Processes Geophys. Discuss., 2, 43, 2015.