Ocean Science

Discussions

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Interactive comment on "Forecasting experiments of a dynamical-statistical model of the sea surface temperature anomaly field based on the improved self-memorization principle" *by* Mei Hong et al.

Anonymous Referee #1

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Overview: Accurate prediction of ENSO event is crucial to improving climate prediction, however, it is often problematic in model, if even in national research center such as U.S. Climate Prediction Centre, Japan Meteorological Agency, and European Centre for Medium-Range Weather Forecasting, which still a challenge isuues. This paper introduced a new approach applied to SSTA field and ENSO index based on a dynamic system reconstruction idea and the principle of self-memorization. The overall results indicated that the improved model is more appropriate for describing both SSTA field and ENSO events. This study provides a useful information and a possible approach for the improving the ENSO prediction, especially there is potential in dynamical extent prediction, which can be accepted after carefully addressing the following comments.

Specific comments: 1. The method used in this study is based on the statistic regression, which basically depends on the quality of observations. In section 2.1, although the authors claimed that the monthly average SST data from the UK Met Office Hadley Centre is adopted in this study, the reliability of this datasets is not mentioned. Besides, the verification of this datasets with in-situ observation is also strongly recommended by this reviewer. 2. One important conclusion of this study is "The difference between forecast results in summer and those in winter is not high, indicating that the improved model can overcome the spring predictability barrier to some extent". This conclusion is vague and lack of rigorous verification because the authors did not verify their results in spring season. 3. Lines 42-44, "Compared with six mature models published previously, the present model has an advantage in prediction precision and length, and is a novel exploration of the ENSO forecast method". The major concerns of this reviewer are: what is the sample size in comparing the forecast results? Are those samples really representative?

Minor comments: 1. Line 122, give the full name of "SOI". 2. Line 549, "mode" should be "model".

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