Forecast of Indo-Pacific SST based on Linearized IPCC Twentieth-Century Climate Simulations

QIAOYAN WU
State Key Laboratory of Satellite Ocean Environment Dynamics, Second Institute of Oceanography, Hangzhou, Zhejiang, China
Department of Ocean Science and Engineering, Zhejiang University, Hangzhou, Zhejiang, China

A linear Markov model is developed to predict sea surface temperature (SST) change in Pacific and Indian Oceans. Sea surface temperature, sea surface wind and sea surface height from 8 coupled ocean-atmosphere general circulation models submitted to the Intergovernmental Panel on Climate Changes Fourth Assessment Report (IPCC AR4) are chosen to define the state of tropical Pacific and Indian Oceans. Multiple empirical orthogonal functions of these variables from different IPCC simulations are used to build the Markov model. The forecasts of SST based on Markov matrices from those IPCC simulations are combined to make ensemble mean forecast. Taking the advantage of long data records of IPCC model simulations, the ensemble-mean forecast successfully simulates SST in Indo-Pacific Ocean. The correlation skill in the Indian and central equatorial Pacific is about 0.5 at 9-month lead.

References

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